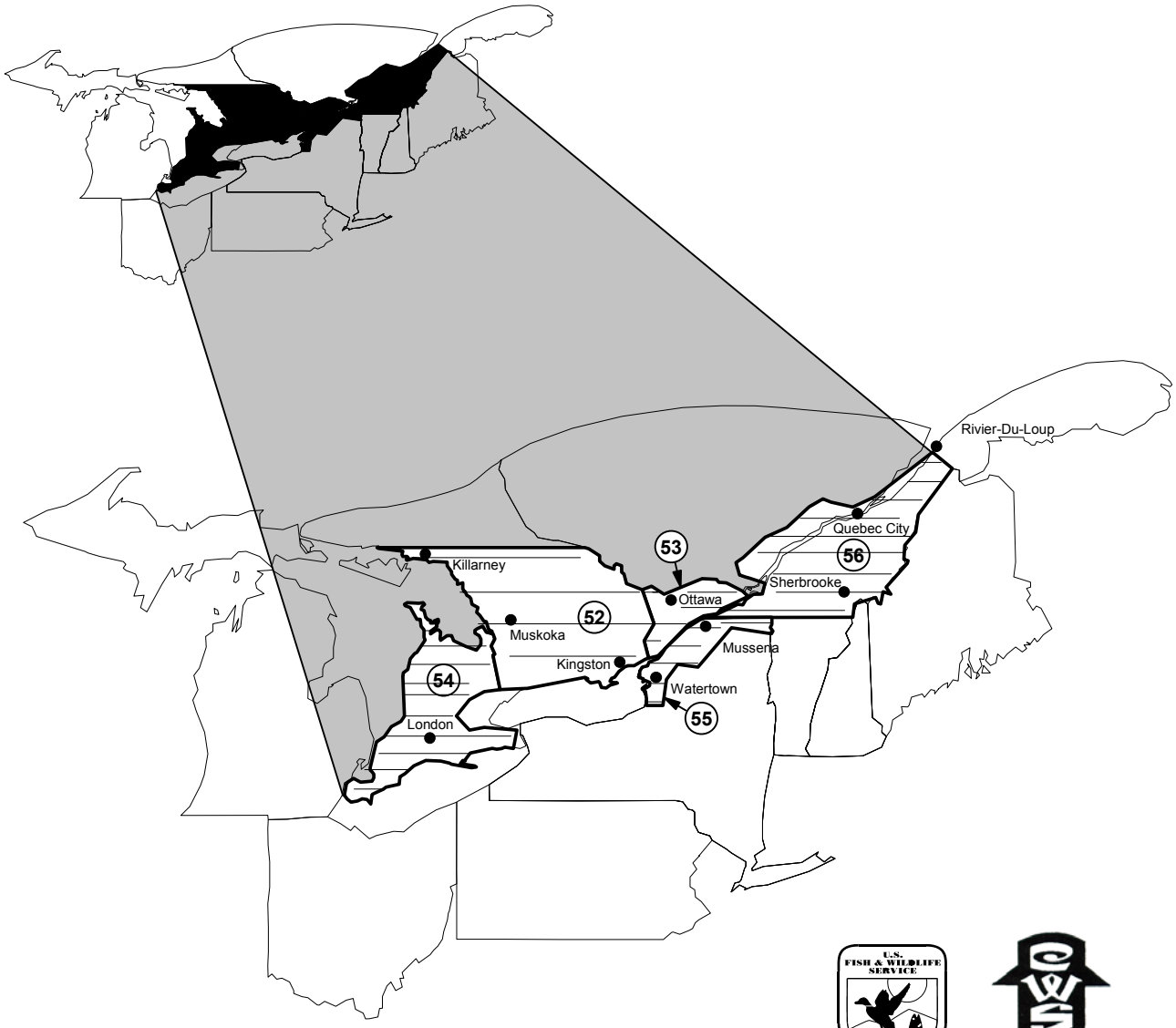
NEW YORK, EASTERN ONTARIO, and SOUTHERN QUEBEC

Waterfowl Breeding Population Survey

2002



2002 Waterfowl Breeding Population Survey New York, Eastern Ontario, and Southern Quebec

April/May 2002

Strata Surveyed
52,53,54,55,56

Survey Conducted and Data Supplied by
United States Fish & Wildlife Service

Aerial Crew

Pilot/Observer	Mark D. Koneff, U.S. Fish and Wildlife Service
Observer	Charles Kitchens-Hayes, U.S. Fish and Wildlife Service

Abstract

This survey has been conducted for the past twelve years in conjunction with the Black Duck Joint Venture to provide waterfowl breeding population estimates for New York, Southern Ontario, and Southern Quebec. In contrast with the winter of 2000-2001, the winter of 2001-2002 was warm and dry, and drought conditions persisted throughout much of this region. Waterfowl returned early to southern Ontario, Quebec and northern New York, however, early spring habitat conditions were poor. Several weeks prior to the initiation of population surveys, a pattern of cooler temperatures and increased precipitation emerged. During much of the survey period, temperatures were significantly below normals and frequent rain and some snow events continued. By the initiation of surveys wetland habitat conditions were greatly improved. Waterfowl populations were greater than 2001 levels, but remained significantly below long-term averages. Dabblers population estimates over all were 16.6% above year 2001, but 28.7% below the long-term average. Divers were 57.9% above 2001 estimates and 33.6% above the long-term average. Canada geese estimates declined, 72.9% from 2001 and 19.5% from the long-term average.

Methods

The procedures followed in conducting this survey are detailed in the Standard Operating Procedures for Aerial Waterfowl Breeding Ground Population and Habitat Survey, Section III, revised April 1987. The fixed wing pilot has surveyed these strata the 4 consecutive years. Both the fixed wing and helicopter observers, while new to this survey region, had considerable previous experience in aerial waterfowl surveys. A Partenavia P68 Observer aircraft was used for the survey. Visibility corrections were obtained using Bayesian updating procedures and from an ongoing helicopter visibility bias correction study being conducted in eastern Canada No helicopter operations occurred in strata 52-56 during the 2002 survey.

Since 1998, waterfowl and habitat data have been collected using an onboard digital recording system designed to attribute each waterfowl observation with a geographic location recorded in latitude/longitude. During data transcription, each observation is associated with pertinent information (i.e., stratum, transect, and segment, time, weather conditions, and geographic location).

Weather and Habitat Conditions

Stratum 52: Stratum 52 lies east of the Georgian Bay, north of Lake Ontario, south of the Ottawa River, and west of the line running from Ottawa to Kingston, Ontario. Topography varies from hilly in the north to rolling in the south. The northern part of the stratum is primarily mixed forest, except along the Ottawa River where some farming occurs. The southern half of the stratum is a mixture of woodland and agriculture. Many small to moderate size lakes are found throughout the area, with some large lakes connected by small streams. Small reservoirs and farm ponds are present. Water levels in this area are relatively stable.

Stratum 53: This is a small stratum located southeast of Ottawa, bounded on the north by the Ottawa River and on the south by the St. Lawrence River. The area is relatively flat with some rolling terrain along the west boundary. Agriculture is the primary land use of this area and it has been extensively cleared and drained. The remaining habitat consists of a few marshes, small streams and drainage ditches. Water conditions are variable in this area depending on the winter and spring precipitation and were good in 2002 as a result of precipitation which fell just prior to and during the aerial survey.

Stratum 54: Stratum 54 includes much of the southwestern Ontario peninsula, bounded in the north by Georgian Bay, in the west by Lake Huron and Lake St. Clair, and in the south by Lake Erie. The terrain is flat in the south to rolling in the north. Agriculture predominates throughout this stratum. Significant wetland drainage has occurred. In southern portions of the stratum, woodlands are largely restricted to small lots and riparian areas. Deciduous woods transition to mixed forest in the north and forested area increases. Habitat in this stratum includes lake shore marshes, numerous field drainage ditches, small marshes and wooded wetlands, and riparian zones of streams. Water conditions are heavily influenced by winter and spring precipitation in this stratum. In 2002, water conditions ranged from fair to good in this stratum, due, again to spring precipitation which fell just prior to and during aerial survey operations.

Stratum 55: This stratum encompasses the St. Lawrence lowlands of New York, bounded by Lake Champlain to the east, the Adirondacks to the south, Lake Ontario to the west, and the St. Lawrence River to the north. The terrain varies from rolling to moderate in the south, to flat and slightly rolling to the north. Habitat consists of hardwood forests interspersed with streams, lakes, marshes, bogs, and wooded wetlands with many small marshes along the St. Lawrence River. Agriculture consists primarily of dairy operations and small farms. Some timber harvesting occurs. Water conditions are relatively stable in this stratum, however in 2002, spring rain and snow prior to the survey resulted in very good wetland and stream conditions. Standing temporary water was observed to cover large portions of fields and meadows in the St. Lawrence lowlands.

Stratum 56: This stratum is located in southern Quebec. The boundary lies just south of Montreal and extends to Quebec City, the west end of the Gaspe Peninsula, down to Maine, New Hampshire, Vermont, and New York borders, and back to Montreal. This area is flat in the west trending toward rolling and mountainous in the east and southeast. Habitat in the west consists drainage ditches, farm ponds, small streams, and some tidal marsh along the St. Lawrence River. Western portions of this area are largely dominated by agricultural land-uses. Forestry and mining are important industries in eastern and southeastern portions of the stratum. To the east and southeast, along the U.S. border, habitat consists of small streams, small lakes and wooded wetlands, bogs, and some larger lakes. Water conditions in this stratum, particularly in lowland areas to the west, are sensitive to winter and spring precipitation. In 2002, wetland conditions in lowland agricultural habitats in the western portion of this stratum were good, however, wetland, stream, and ditch habitats in the higher elevation, forested habitats in eastern portions of the stratum appeared drier than normal.

Despite a winter drought, significant amounts of spring precipitation restored wetland condition over much of this crew area. Continued precipitation will be necessary to maintain wetlands in good condition for brood rearing. With continued precipitation and temperatures returning back to normal ranges during the hatching period, waterfowl production should be good in 2002.

Table 1. Survey design for Ontario, New York, and Quebec, May 2002.

STRATUM	52	53	54	55	56
Survey Design					
Square Miles in Stratum	28,265	4,259	12,245	4,149	21,721
Linear Miles Sampled in Stratum	720	180	666	216	936
Number of Transects in Stratum	4	4	9	5	10
Number of Segments in Stratum	40	10	37	12	52
Expansion Factor	157.028	94.644	73.544	76.833	92.825
Current Year Coverage					
Square Miles in Stratum	28,265	4,259	12,245	4,149	21,721
Linear Miles in Sample	720	180	666	216	936
Number of Transects in Sample	4	4	9	5	10
Number of Segments in Sample	40	10	37	12	52
Expansion Factor	157.028	94.644	73.544	76.833	92.825

Breeding Populations

Waterfowl populations were greater than 2001 levels, but remained significantly below long-term averages. Dabbler population estimates over all were 16.6% above year 2001, but 28.7% below the long-term average. The mallard estimate increased 20.7% over year 2001, but remained 1.4% below the long-term average. Increases in mallard estimates in 2002 may be partly attributable redistribution in response to drying conditions in the prairie pothole region.

Black ducks populations were 15.5% below 2001 estimates. Black ducks remain 39.3% below the long-term average. Divers were 57.9% above 2001 estimates and 33.6% above the long-term average. The ring-necked duck estimate increased 324.8% from year 2001, while bufflehead and goldeneye estimates decreased 18.3% and 74.7%, respectively, during this same period Ring-necks and buffleheads were 138.0% and 10.9%, respectively, above long-term averages while goldeneye were 67.3% below the long-term average for this crew area. Canada geese decreased 72.9% from 2001 and 19.5% from the long-term average.

Table 2. Status of waterfowl breeding population estimates (thousands, adjusted for visibility bias) by species and stratum with comparisons against the previous year and the long-term mean for Eastern Ontario and New York.

	Stratum							% Change From		
Species/Ponds	52	53	54	55	56	2002 Total	2001 Total	1990-2001 Mean	2001	1990-2001 Mean
Ducks										
Dabblers										
Mallard	37.8	20.2	48.7	29.2	31.2	167.1	138.4	169.5	20.7%	-1.4%
Am. black duck	11.6	1.8	2.2	5.8	12.5	33.9	40.1	55.9	-15.5%	-39.3%
Gadwall	0.0	0.0	1.3	0.0	4.0	5.3	1.1	7.1	368.7%	-25.8%
Am. wigeon	1.4	0.0	0.7	0.0	5.9	8.0	9.0	18.0	-11.0%	-55.8%
Am. green-winged teal	1.7	2.0	2.4	0.0	32.4	38.5	28.6	45.1	34.4%	-14.7%
Blue-winged teal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	56.2	--	-100.0%
N. shoveler	0.0	0.0	0.5	0.0	0.6	1.2	0.5	0.9	126.3%	29.0%
N. pintail	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.4	--	-100.0%
Subtotal	52.5	24.1	55.8	35.1	86.5	253.9	217.8	356.3	16.6%	-28.7%
Divers										
Redhead	0.0	0.0	0.0	0.0	0.0	0.0	2.3	2.8	-100.0%	-100.0%
Canvasback	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	--	-100.0%
Scaups	0.0	0.0	0.0	0.0	0.0	0.0	0.3	8.3	-100.0%	-100.0%
Ring-necked duck	57.0	28.5	16.7	2.8	10.0	115.1	27.1	48.4	324.8%	138.0%
Goldeneyes	7.1	0.0	0.0	0.0	1.4	8.5	33.6	26.1	-74.7%	-67.3%
Bufflehead	23.5	0.0	4.0	0.6	0.4	28.5	35.0	25.7	-18.3%	10.9%
Ruddy Duck	0.0	0.0	3.1	0.0	0.0	3.1	0.0	3.3	--	-7.0%
Subtotal	87.6	28.5	23.8	3.5	11.8	155.2	98.3	116.2	57.9%	33.6%
Miscellaneous										
Long-tailed duck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	--	-100.0%
Eiders	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	--	-100.0%
Scoters	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	--	-100.0%
Mergansers	30.7	4.5	8.1	3.5	18.9	65.7	13.3	82.1	393.6%	-19.9%
Subtotal	30.7	4.5	8.1	3.5	18.9	65.7	13.3	84.2	393.6%	-21.9%
Total Ducks	170.8	57.2	87.7	42.0	117.2	474.9	329.4	556.6	44.2%	-14.7%
Canada Goose	21.8	202.8	91.3	61.5	84.1	461.5	1703.0	573.3	-72.9%	-19.5%
Am. coot	0.0	0.0	1.0	0.0	0.0	1.0	0.0	4.8	--	-78.2%

Appendix 1. Long-term trend in adjusted waterfowl breeding population estimates (thousands) for Eastern Ontario and New York.

Species/Ponds	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Ducks										
Dabblers										
Mallard	173.0	122.5	265.2	252.6	170.0	184.9	226.7	171.3	118.0	115.5
Am. black duck	103.0	65.7	73.5	49.2	59.2	89.3	39.9	38.9	39.0	31.7
Gadwall	11.2	7.4	3.6	1.9	0.0	30.6	6.6	2.7	4.0	13.7
Am. wigeon	28.8	35.1	6.7	9.4	14.6	13.8	17.0	11.0	4.3	62.8
Am. green-winged teal	28.8	21.7	19.2	22.0	106.9	39.0	64.0	34.4	16.7	138.4
Blue-winged teal	126.2	39.9	40.9	282.4	78.9	53.6	16.1	14.9	14.6	1.6
N. shoveler	0.7	2.2	0.0	1.0	1.1	0.5	2.4	0.0	0.0	2.4
N. pintail	25.6	3.4	2.0	0.4	1.1	1.4	1.5	3.5	0.0	2.4
Subtotal	497.2	297.8	411.1	618.9	431.7	413.0	374.2	276.6	196.7	368.5
Divers										
Redhead	4.7	3.6	0.7	4.5	5.8	6.1	1.8	3.0	0.8	0.0
Canvasback	3.3	4.4	1.5	3.0	4.6	2.1	0.0	0.0	0.0	0.0
Scaups	10.3	3.4	7.2	5.0	15.2	4.7	6.3	20.7	12.7	1.5
Ring-necked duck	50.4	44.9	105.9	63.7	98.8	86.1	21.7	36.6	7.2	16.0
Goldeneyes	14.0	20.5	99.6	22.8	10.6	2.8	6.4	15.4	48.4	26.7
Bufflehead	58.4	40.2	42.4	8.9	26.6	17.0	25.6	3.3	25.2	19.1
Ruddy Duck	0.0	12.0	0.0	5.1	0.0	0.0	12.2	0.0	4.5	5.6
Subtotal	141.2	129.0	257.2	112.9	161.6	118.8	73.9	79.0	98.9	68.9
Miscellaneous										
Oldsquaw	0.0	0.0	0.0	3.8	0.0	0.0	0.0	0.0	0.0	0.9
Eiders	0.0	0.0	0.0	0.0	0.0	0.0	3.5	0.0	0.0	0.0
Scoters	0.0	0.8	0.9	0.0	0.0	5.0	0.2	0.0	0.0	0.2
Mergansers	69.5	106.8	61.3	55.4	272.1	154.4	150.7	35.0	6.1	35.9
Subtotal	69.5	107.5	62.2	59.3	272.1	159.3	154.4	35.0	6.1	37.0
Total Ducks	707.9	534.3	730.5	791.0	865.4	691.2	602.5	390.6	301.7	474.4
Canada Goose	364.5	854.0	145.5	221.8	279.4	325.1	123.4	85.1	128.1	2473.3
Am. coot	3.1	19.0	6.1	5.1	2.4	5.2	15.6	0.0	0.8	0.0

Species/Ponds	2000	2001	2002
Ducks			
Dabblers			
Mallard	95.5	138.4	167.1
Am. black duck	41.2	40.1	33.9
Gadwall	2.8	1.1	5.3
Am. wigeon	3.9	9.0	8.0
Am. green-winged teal	22.1	28.6	38.5
Blue-winged teal	6.1	0.0	0.0
N. shoveler	0.0	0.5	1.2
N. pintail	0.0	0.0	0.0
Subtotal	171.5	217.8	253.9
Divers			
Redhead	0.5	2.3	0.0
Canvasback	0.0	0.0	0.0
Scaups	13.1	0.3	0.0
Ring-necked duck	21.9	27.1	115.1
Goldeneyes	11.9	33.6	8.5
Bufflehead	7.3	35.0	28.5
Ruddy Duck	0.0	0.0	3.1
Subtotal	54.6	98.3	155.2
Miscellaneous			
Oldsquaw	10.0	0.0	0.0
Eiders	0.0	0.0	0.0
Scoters	0.0	0.0	0.0
Mergansers	24.3	13.3	65.7
Subtotal	34.3	13.3	65.7
Total Ducks	260.4	329.4	474.9
Canada Goose	176.9	1703.0	461.5
Am. coot	0.0	0.0	1.0

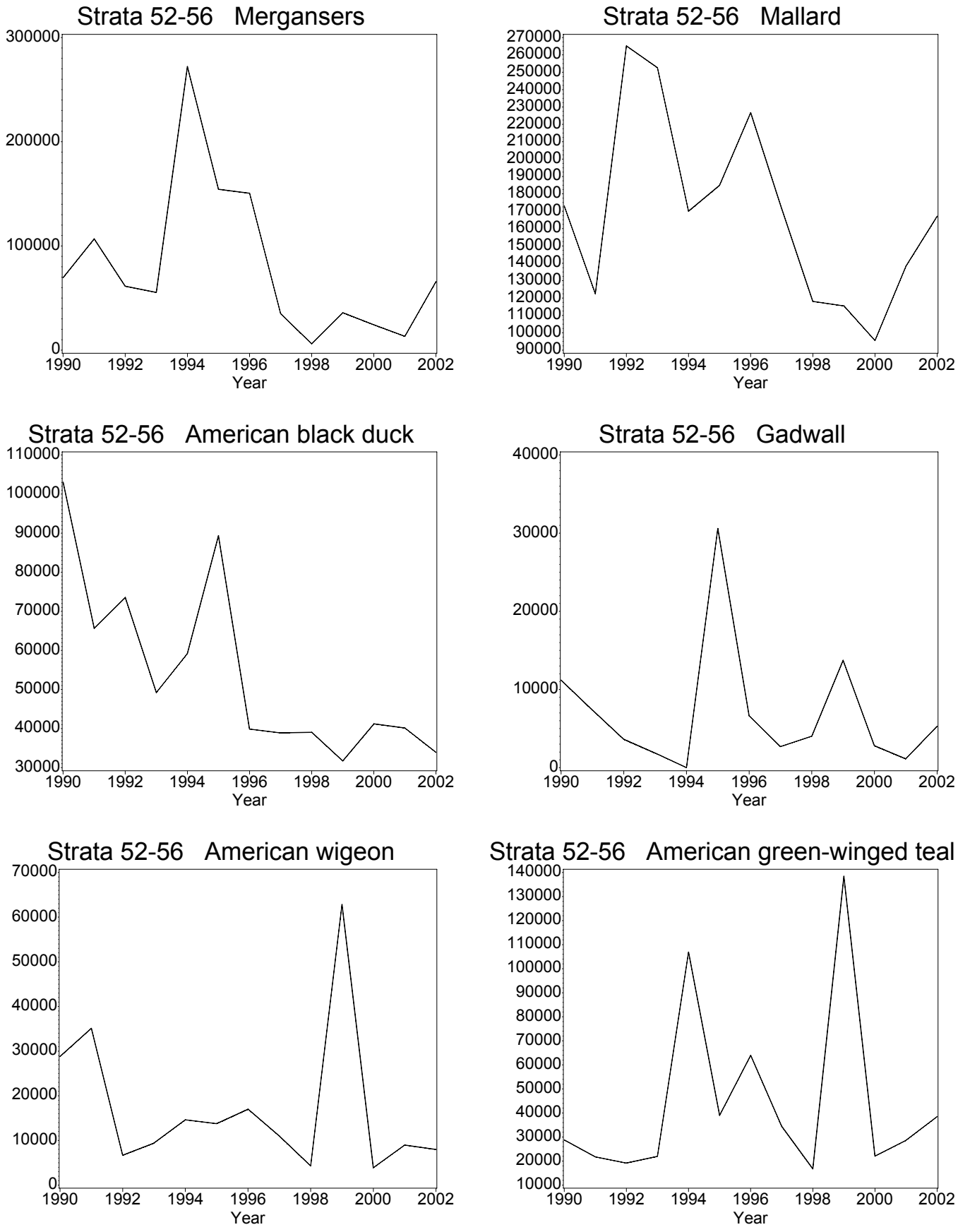
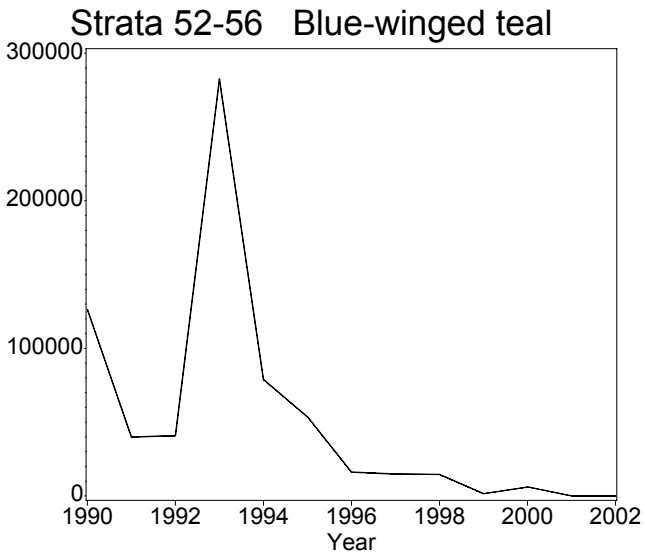
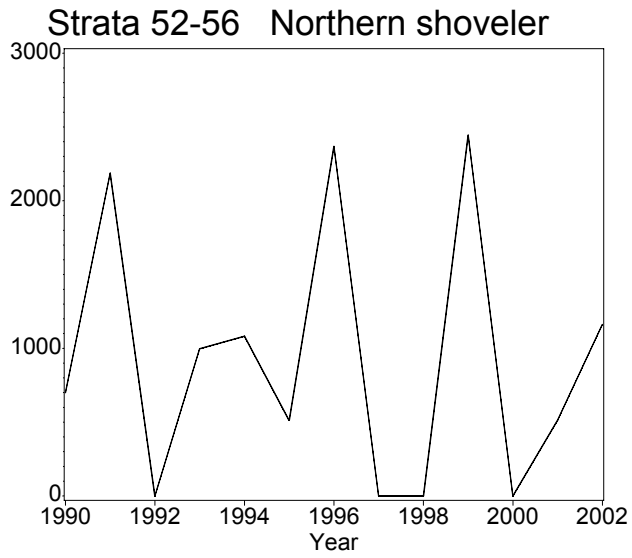
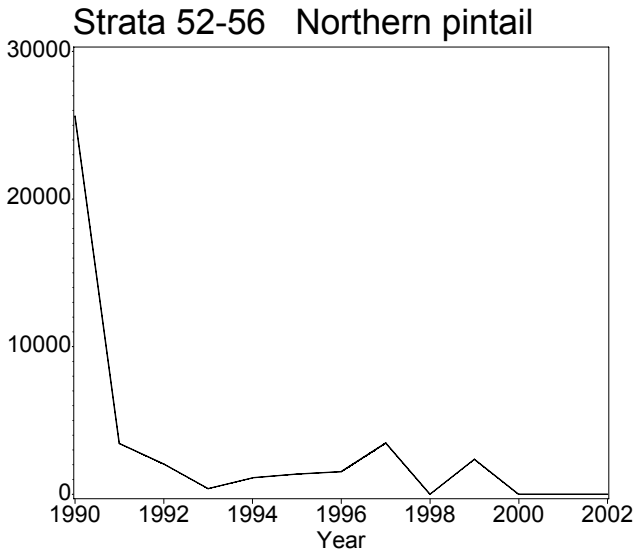
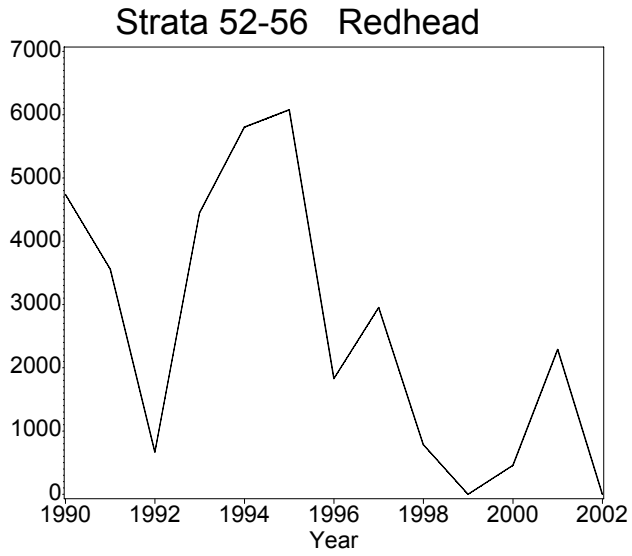


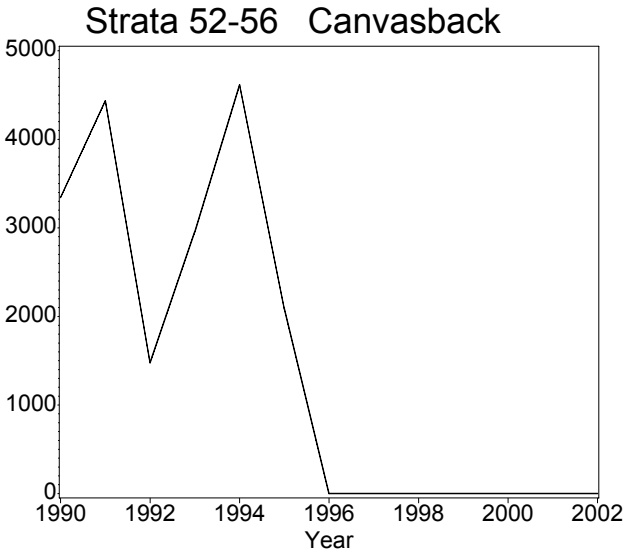
Figure 1. Population estimates for the individual waterfowl species on an annual basis.

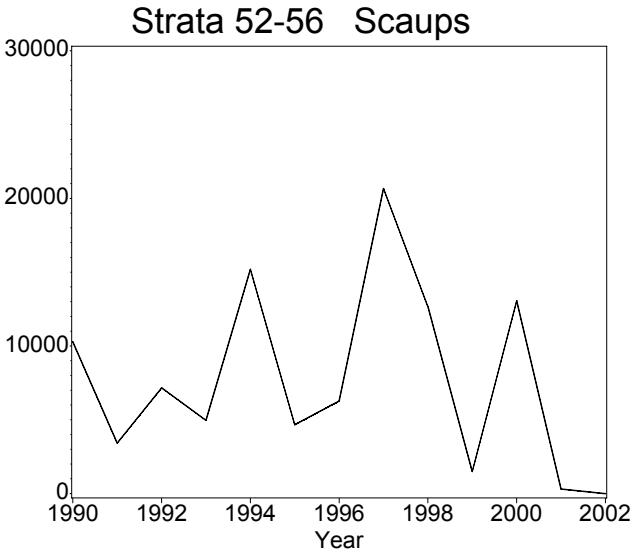












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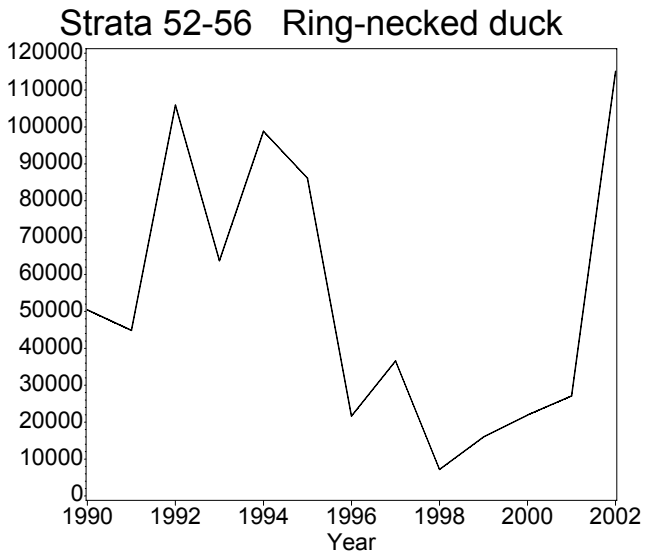

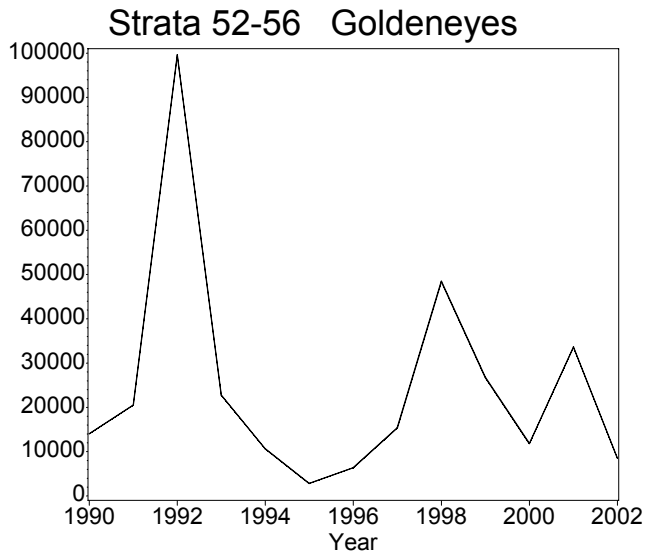

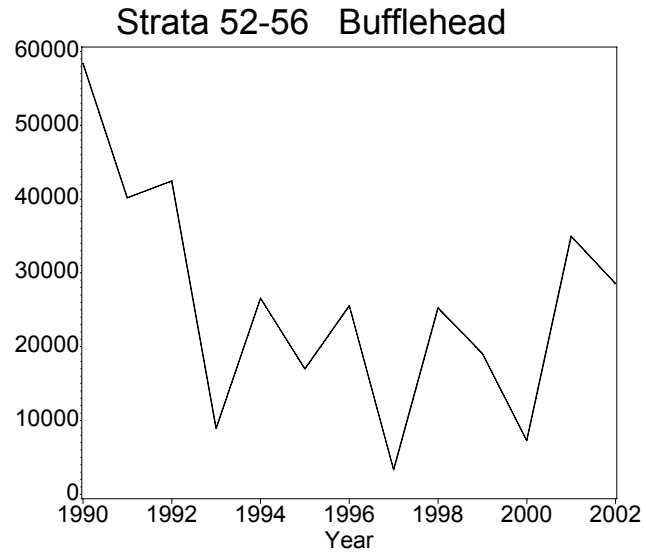

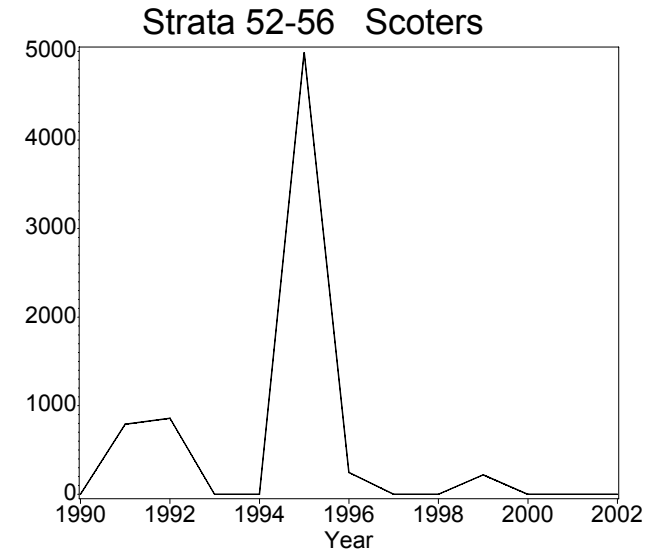

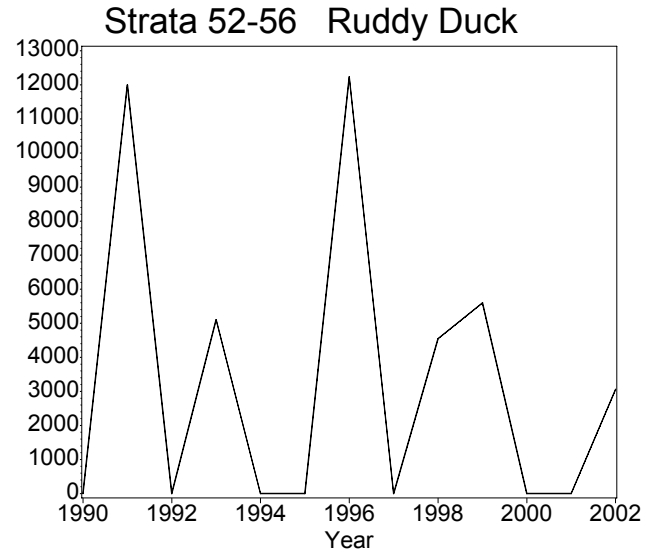

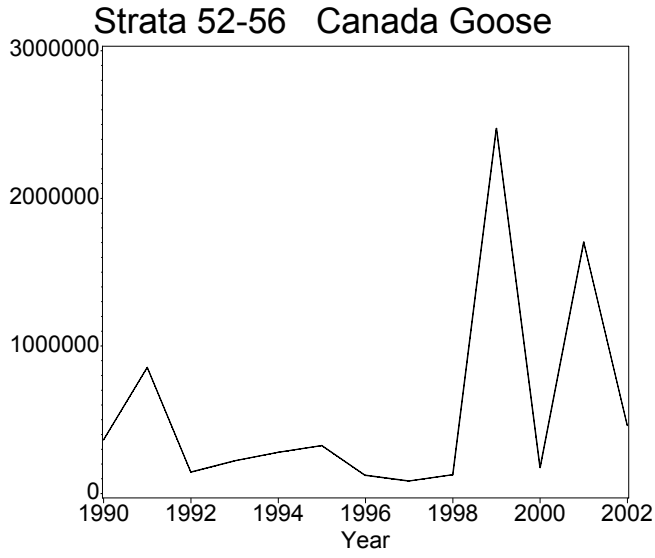

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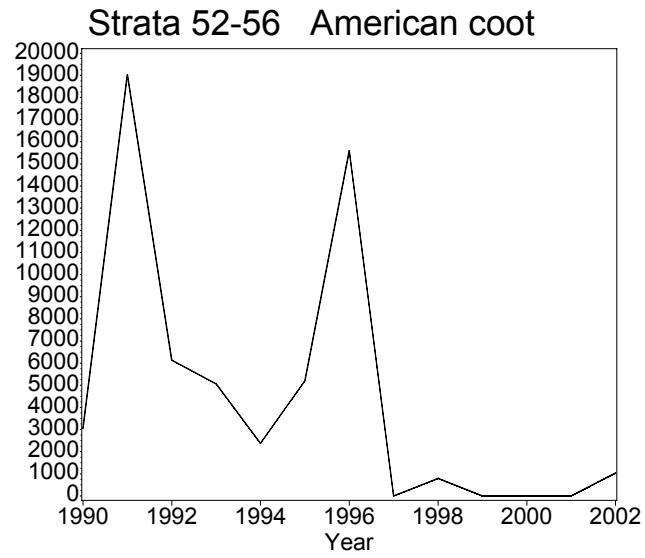

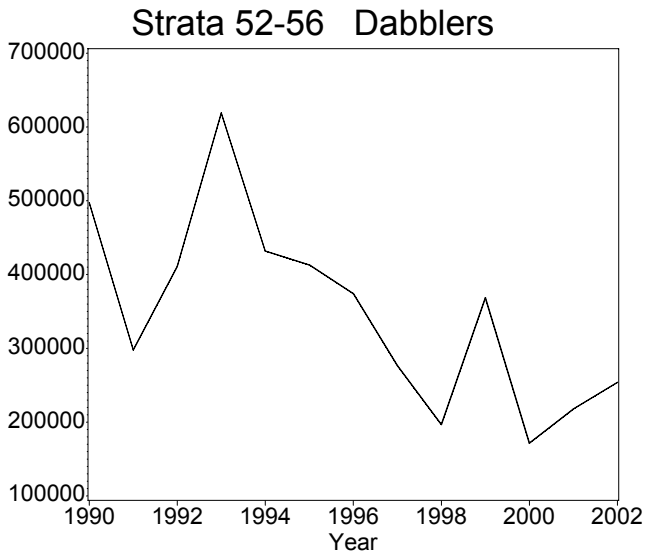

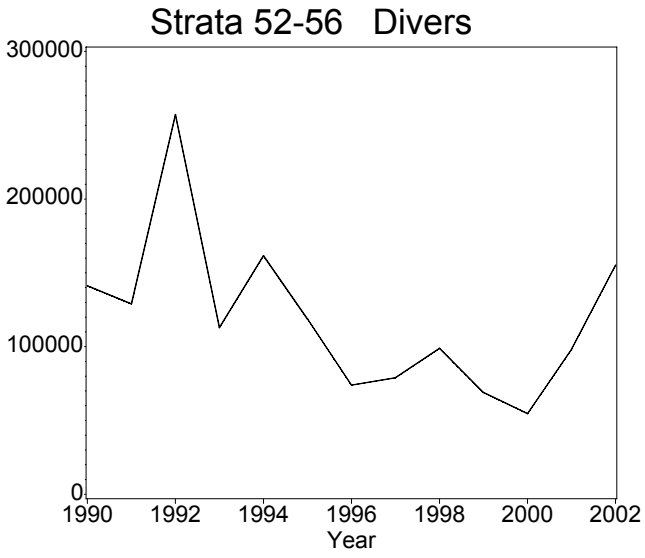

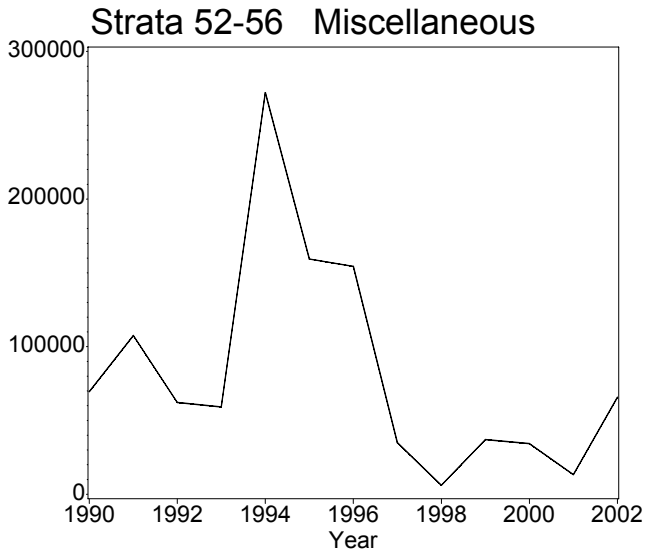

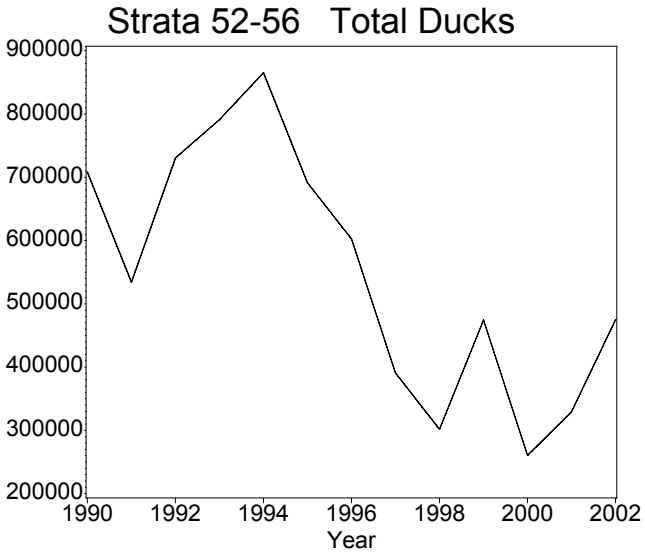

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